



US006308017B1

(12) **United States Patent**  
Taniyama et al.

(10) Patent No.: **US 6,308,017 B1**  
(45) Date of Patent: **Oct. 23, 2001**

(54) **IMAGE FORMING SYSTEM INCLUDING  
OSCILLATING TYPE WASTE TONER  
CONTAINER**

5,534,988 \* 7/1996 Gerbasi ..... 399/358

#### FOREIGN PATENT DOCUMENTS

11-327272 11/1999 (JP).

\* cited by examiner

(75) Inventors: Yoshiharu Taniyama, Kawasaki;  
Noriyuki Umezawa; Shinichi Itoh,  
both of Yokohama, all of (JP)

(73) Assignee: Toshiba TEC Kabushiki Kaisha,  
Tokyo (JP)

Primary Examiner—William J. Royer

(74) Attorney, Agent, or Firm—Foley & Lardner

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(57) **ABSTRACT**

An image forming system has: a developing device for causing a toner to adhere to a latent image, which is formed on a photosensitive material drum, to form a visible image; a toner supply device for supplying a toner, which is housed in a toner container, to the developing device; a toner removing device for removing a remaining toner after the visible image on the photosensitive material drum is transferred to a transfer paper; a waste toner container for accumulating therein a waste toner removed by the toner removing device; and an oscillating mechanism for oscillating the waste toner container. Thus, the waste toner in the waste toner container can be efficiently accumulated, so that the system can be miniaturized.

(21) Appl. No.: 09/506,371

(22) Filed: Feb. 18, 2000

(51) Int. Cl.<sup>7</sup> ..... G03G 21/10

(52) U.S. Cl. .... 399/35; 399/358

(58) Field of Search ..... 399/12, 34, 35,  
399/358, 360

(56) **References Cited**

#### U.S. PATENT DOCUMENTS

4,436,414 \* 3/1984 Kamiyama et al. .... 399/35

**12 Claims, 7 Drawing Sheets**

